

Bi-directional Signal Interface

Abstract

A bi-directional signal interface includes a first waveguide that propagates a first traveling wave. The first waveguide has one end that is coupled to a RF input port that receives a RF transmission signal and another end that is coupled to a RF bi-directional port that receives a RF reception signal and that transmits the RF transmission signal. A second waveguide is positioned proximate to the first waveguide. The second waveguide has one end that is coupled to an output port that passes the received RF reception signal. A non-reciprocal coupler couples fields from the first waveguide to the second waveguide so that the RF reception signal from the bi-directional port couples from the first waveguide to the second waveguide in a substantially non-reciprocal manner and then passes through the output port, and the RF transmission signal from the RF input port passes through the first waveguide to the RF bi-directional port.